

### Abstract of the Disclosure

Provided is an optical Code Division Multiple Access (CDMA) transmitting apparatus and method for transmitting bipolar data in an optical CDMA system. The optical CDMA transmitting apparatus and method of the present research has a simple structure, including only one optical CDMA encoder and one optical modulator. This technology minimizes multiple access interference by using modified pseudo-noise code in the encoding process, thus improving the optical CDMA transmission performance. The optical CDMA transmitting apparatus includes: an optical CDMA encoding means for encoding lights from the outside into a code or a complement code of the code; and an optical modulation means for transmitting the code or the complement code of the code which is selected in the optical CDMA encoding means based on the polarity (either '0' or '1') of the data inputted from the outside.